REMARKS

This amendment is responsive to the Office Action mailed April 11, 2005 (hereinafter referred to as the "instant Action"). Original claims 1-3, 7, 9-15 and 23-29 are under examination in the instant action. Claims 4-6, 8, 16-22 and 30-47 were previously withdrawn from consideration in response to a prior Office Action. Claims 1-3, 7, 9-15 and 23-29 stand rejected. No claim has been allowed.

In response to the instant Action, claims 1-3 and 7 have been canceled without waiver or prejudice and Applicants reserve the right to reintroduce said canceled claims into the above-captioned U.S. patent application or file a subsequent application, directed to said canceled claims. Applicants attest that the cancellation of claims 1-3 and 7 does not require a change in inventorship. Applicants also state that the cancellation of claims 1-3 and 7 does not introduce new matter pursuant to 35 U.S.C. §132. In addition, claims 9, 10, 13 and 14 have been amended, claims 11, 12, 15, 25, 26 and 29 have been withdrawn and new claims 48 and 49 have been added, none of which, Applicants assert add new matter.

1. Applicants are grateful for the consideration and entry of the Information Statement submitted October 13, 2004.

2. Applicants are grateful for the withdrawal of the objection to the Specification for failing to provide a reference to the prior application as required by 35 U.S.C. 120.

3. Applicants are grateful that the Examiner recognized that the specification did not contain any drawings and that the objection for lack of a Brief Description of the Several Views of the Drawing(s) as set forth in 37 C.F.R. 1.74 was in error.

Applicants submit that the specification is now in order.

4. Applicants are grateful for the withdrawal of the objection to the instant application for not being fully in compliance with the sequence rules, 37 C.F.R. §1.821-1.825.

5. The Examiner has maintained the objection of claims 1-3, 7, 9-15 and 23-29 for encompassing unelected inventions. Solely in an effort to put this application in a condition for allowance, claims 11, 12, 15, 25, 26 and 29 have been withdrawn from consideration. Applicants assert that rejoinder of all withdrawn claims, i.e., 4-6, 8, 11, 12, 15-22, 25, 26 and 29-47 is proper since the Examiner has failed to demonstrate in the art that the PTH2 receptor analogues of claims 11, 12 and 15 have different putative functions and structures that require different "search terms, starting points and strategies." The Examiner's speculation that said analogues were in fact patentably distinct has not been proven by the prior art cited by the Examiner and as such, rejoinder is justified and proper.

6. The amendment filed November 15, 2004 was objected to under 35 U.S.C. §132 as introducing new matter into the disclosure. Applicants respectfully traverse this rejection. In particular, the Examiner objects to the amendment of claim 1-3 requiring that the claimed analogues be "human" analogues as unsupported in the description. Applicants respectfully assert that the amendments of claims 1-3 wherein the claimed PTH and PTHrP analogues were restricted to "human" analogues merely limited the scope of the most general claims to that of the more specific dependent claims. As is known by those who practice in the biological arts, a lower case "h" is used in the shorthand employed to denote that a hormone or other biologically-active peptide is human in nature, as opposed to, for example, use of a lower case "b" to denote a bovine source or lowercase "r" to indicate a rat source. Applicants confirmed this understanding at page 20, lines 7-9 of the application. It is also noted in the 1st footnote of the Gardella article cited by the Examiner in the instant Action. Applicants note that the eighty-six embodiments discussed in the application all have a lower case "h", thus indicating that the all embodiments were human

analogues. In addition, the specific analogues of claims 11, 12 and 14, all are human analogues. Further, a careful reading of the application indicated that the Applicants conducted biological tests to determine a claimed compounds ability to bind to the ***human*** PTH2 receptor, ***see***, page 21, lines 3-6. The application clearly contemplates human analogues and as such the amendments effected by the Applicants in their November 15, 2004 amendment do not introduce new matter contrary to 35 U.S.C. §132.

The new matter rejection is clearly unfounded and must be withdrawn.

7. Claims 1-3, 7, 9-15 and 23-29 stand rejected under 35 U.S.C. §112, first paragraph, for containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

As set forth in the training materials provided to Examiner's by the U.S. Patent and Trademark Office, an Examiner is to:

> [r]eview the full content of the specification and identify features that applicant has indicated as being essential to the operation/function of the claimed invention. Identify which features of the claims invention are conventional taking into account the level of general knowledge and skill in the art.

As partially correctly noted by the Examiner, claims 1-3, 7, 9-15 and 23-29 are directed to PTH analogues, truncated analogues and compositions of PTH analogues. What the Examiner has failed to take into consideration is the requirement that the claimed analogues, truncated analogues and compositions be human in nature and more specifically that said to PTH analogues, truncated analogues and compositions of PTH analogues be able to selectively bind to the PTH2 receptor.

As further set forth in the Examiner training materials, the Examiner is then required to:

> [r]eview the language of each claim to ascertain the meaning of the terms used and whether the language serves as a limitation on the claim. Interpret the claimed invention as a whole giving the claim its broadest reasonable interpretation n light of and consistent with the written description and the prior art. Characterize whether the claim is drawn to a single embodiment of drawn to a *genus*.

The Examiner's statement that the "specification does not teach functional or structural characteristics of all compounds and all polypeptides encompassed by the claims" indicates that a thorough reading of the application was not conducted and that the Examiner has not properly applied the guidelines set forth by the USPTO when making a 35 U.S.C. §112, first paragraph, rejection. Applicants point out that the claims of the instant application define the compounds not only by structure, i.e., "human PTH analogue or a truncated human PTH analogue," but also by functional language, i.e., ability to "selectively bind to the PTH2 receptor". This functional limitation of the claims of the instant application is an element which defines the *metes and bounds* of the compounds being claimed just as much as a chemical structure defines a compound of the instant invention. Applicants have taught how to synthesize the compounds of the instant application, *see* pages 20 and 26-29, as well as teaching how to test said compounds for binding activity to the PTH2 receptor, *see* pages 21-24, thus, a compound of the instant application has to have been synthesized and tested positive for selective binding to the PTH2 receptor for the compound to fall within the claims of the instant application. The Examiner's statement that the specification fails to teach the functional characteristics of all of the compounds encompassed by the claims is outright wrong since all compounds that fall within the scope

of the claims MUST selectively bind to the PTH2 receptor. The Examiner's statement that the specification does not teach the structural characteristics of all the compounds encompassed by the claims, is also incorrect. The Examiner failed to recognize that the human parathyroid hormone (PTH) embodiments are 82-97% homologous whereas the embodiments of human parathyroid related protein (hPTHrP) analogues are 71-94% homologous.

The Applicants reassert the argument set forth in their reply submitted November 15, 2004 that the instant application meets the requirement of 35 U.S.C. §112, first paragraph, as if stated in the entirety herein. As stated previously, the inquiry into whether the description requirement is met, must be determined on a case-by-case basis and is a question of fact. In re Wertheim, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). The ***examiner has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims.*** In re Wertheim, 541 F.2d 257, 265, 191 USPQ 90, 98 (CCPA 1976); Ex parte Sorenson, 3 USPQ2d 1462, 1463 (Bd. Pat. App. & Inter. 1987). As stated in the Examiner training materials, any time an examiner bases a rejection of a claim or the denial of the application on the lack of a written description, the examiner should:

(1) identify the claim limitation not described; and

(2) provide reasons why persons skilled in the art at the time the application was filed would not have recognized the description of this limitation in the disclosure of the application as filed; a typical reason points out the differences between what is disclosed and what is claimed. Once again, the Examiner has failed to comply with the U.S.P.T.O. guidelines by failing to identify those limitations in the claims that are not

described in the specification. Is human PTH analogue not enabled? Truncated human PTHrP analogue not described adequately? Selective binding not understood? Phe? Lys?

To illustrate Applicants' argument that the instant application does in fact meet the requirements of 35 U.S.C. §112, first paragraph, Applicants direct the Examiner's attention to In re Smyth, 480 F.2d 1376, 1383, 178 U.S.P.Q. (BNA) 279 (C.C.P.A. 1973)) which was relied upon by the Examiner as support for the 112, 2nd paragraph rejection. In *Smythe*, the court ***rejected*** an argument that an applicant's claims to a sample analyzer using an "inert fluid" medium to separate components of a sample were invalid because the original specification contained references only to "air or other gas" media. The Examiner argued that in technical terms, "fluid" includes liquids while "gas" of course does not; thus the claims were indeed broader than the specification. The court holding that the written description requirement was met stated:

> We are not saying that the disclosure of "air or other gas which is inert to the liquid" sample by itself is a description of the use of all "inert fluid" media. Rather, it is the description of the properties and functions of the "air or other gas" segmentizing medium described in appellants' specification which would suggest to a person skilled in the art that the appellants' invention includes the use of "inert fluid" broadly.

As evidenced by *Smythe*, and contrary to the Examiner's position, literal definitions are not required to meet the written description requirements under the U.S. patent code. Unlike *Smythe*, all terms used in the claims are clearly defined in the specification.

As is required under 35 U.S.C. §112, second paragraph, each and every phrase used by the Applicants' in the claims has clear support and/or an antecedent basis in the description so that the

meaning of the claims may be ascertainable by reference to the description." 37 C.F.R. §1.75(d)(1) (1991). The Examiner's requirement that the Applicants must describe or show possession of **all** *species* of polypeptides that are functionally equivalent to SEQ ID NO: 16, is not a prerequisite to meet the requirements of 35 U.S.C. §112, second paragraph. Demand is made to the Examiner to support this requirement with the requisite authority. Demand is also made that the Examiner's requirement that the Applicants describe a representative number of *species* that could be considered a *genus* of PTH2 compounds also be supported by the necessary authority. Absent a showing by the Examiner as to what terms are not ascertainable, the rejection of claims 1-3, 7, 9-15 and 23-29 stand rejected under 35 U.S.C. §112, first paragraph.

The Examiner's statement that a skilled artisan could not envision the detailed structure of a significant number of encompassed PTH2 compounds is not a requirement for the written description and is incorrect. Even if it were, Applicants disclose eighty six embodiments shown to be analogues that bind to the PTH2 receptor. In addition, as noted by the Examiner in the double patenting and novelty rejections set forth on pages 7-12 of the Action, the similarity between the peptides disclosed in the prior art and the peptides of the instant application, "will have the same inherent binding properties at the PTH2 receptor as those of the instant Application." The Examiner's conclusion that there was no reduction to practice is also incorrect. As stated on page 26, line 21, page 28, line 35 and page 29, lines 10-20, examples 1-5 were synthesized wherein the purity of each was determined by analytical HPLC analysis and weigh was determined by electro-spray mass spectrometer analysis. The compounds were tested for the ability to bind to the human PTH2 activity using the highly detailed assay discussed on pages

21-23 and determined to be PTH2 receptor binding analogues as stated at page 2, lines 27-35. As such, contrary to the Examiner's position, the Applicants did invent the claimed subject matter and were in fact in possession of the claimed *genus*.

Applicants contend that they have met the requirements of Vas-Cuth, Inc. v. Mahurkar, 19 USPQ2d 1111 as detailed above by providing a detailed description of the invention (compounds according to 5 *genus* formulae as well as 86 specific examples), a detailed description to make the claimed compounds, a detailed description to determine the binding ability of the claimed compounds and a detailed description to determine the biological activity of the claimed compounds. Applicants contend that the Examiner has not met her burden of "presenting evidence or reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims" as required under MPEP 2163.04. Applicants further contend that they have fulfilled the requirements of §112, first paragraph.

The rejection of claims 1-3, 7, 9-15 and 23-29 under 35 U.S.C. §112, first paragraph, for containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) at the time the application was filed, had possession of the claimed invention, is improper and must be withdrawn.

8. The Examiner has rejected claims 1-3, 7, 9-15 and 23-29 under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-23 of U.S. Patent No. 5,723,577 (hereinafter referred to as the "'577 patent"). Applicants respectfully traverse this rejection. The general rule in considering an obviousness-type double patenting rejection is that:

> [i]n considering the question of obvious variation, the patent disclosure may not be used as prior art...This is not meant to infer that the disclosure may not be used at all. It may, for instance, be used as a dictionary to learn the meaning of the terms of the claim. It would not be appropriate, however, to indiscriminately use all the generalities of the disclosure. It is only that which is related to and supportive of the claim of the invention that may be used to determine the scope of the claim.

Phillips Petroleum Co. v. U.S. Steel Corp., 673 F. Supp. 1278, 6 USPQ2d 1065, 1090 (D. Del. 1987), *aff'd*, 865 F.2d 1247, 9 USPQ2d 1461 (Fed. Cir. 1989). Only the claims of the instant application, therefore, can be compared with the claims of the '577 patent cited against the instant application. In the case of a provisional obviousness-type double patenting rejection, the claims of the instant application can be compared only with the claims of the patent cited against the claims of the instant application.

As Applicants point out previously, the claims of the instant application define the compounds not only by structure, i.e., "human PTH analogue or a truncated human PTH analogue," but also by functional language, i.e., ability to "selectively bind to the PTH2 receptor". This functional limitation of the claims of the instant application is an element which defines the *metes and bounds* of the compounds being claimed just as much as a chemical structure defines a compound of the instant invention. Applicants have taught how to synthesize the compounds of the instant application as well as teaching how to test said compounds for binding activity to the PTH2 receptor, thus, a compound of the instant application has to have been synthesized and tested positive for selective binding to the PTH2 receptor for the compound to fall within the claims of the instant application.

In addition to the structural elements, the prior art patent or application must teach or suggest the functional limitation of selectively binding to the PTH2 receptor in its claims.

Applicants direct the Examiner's attention to page 2, line 21 to page 3, line 9, of the instant application which explains the difference between a compound that binds to the PTH2 receptor and a compound that selectively binds to the PTH2 receptor. Non-selective PTH2 binding compounds are known in the art, *see* the discussion at page 3, lines 1-3, however, selective PTH2 binding compounds are to the best of Applicants' knowledge not known in the prior art.

More particularly, turning to the Examiner's allegation that the peptides of the '577 patent would inherently selectively bind to the PTH2 receptor because of the similarity between the peptides of the instant application and the peptides of the '577 patent, this aspect of the rejection appears to be based in the doctrine of inherency. The doctrine of inherency applies when something must occur as a necessary result of the disclosed prior art process. Applicants note that the compounds of the '577 patent are known to bind to the PTH/PTHrP (PTH1) receptor. Although binding to the PTH1 receptor does result in some level of binding to the PTH2 receptor, it does not result in selective binding to the PTH2 receptor versus the PTH1 receptor. It is not an inherent property, therefore, of all or even most compounds that bind to the PTH1 receptor that it would preferably bind to the PTH2 receptor. In other words, binding to the PTH1 receptor does not necessarily result in the selective binding to the PTH2 receptor. Mere similarity of structure, therefore, is not a basis for assuming that a PTH1 receptor binding compound would selectively bind to the PTH2 receptor.

The claims of the '577 patent do not suggest that the PTH/PTHrP analogues disclosed therein bind selectively to the PTH2 receptor. Since the claims of the '577 patent (as well as

the specification) do not suggest compounds having selective PTH2 binding activity, the obviousness-type double patenting rejection cannot be maintained.

Further, for those instances where claims 1-3, 7, 9-15 and/or 23-29 of the instant application may encompass compound(s) of the '577 patent which have inherent selective PTH2 binding activity, said claims of the instant application can be considered to claim *species* of the *genus* of compounds of the '577 patent; the *species* being those compounds of the '577 patent that have selective PTH2 binding activity. Applicants have, therefore, discovered a surprising unexpected activity among a *sub-genus* of PTH analogues and PTHrP analogues, namely that the *sub-genus* selectively binds to the PTH2 receptor.
Applicants point out that:

> [i]t is well settled that a valid patent may issue for a nonobvious improvement on a prior patented invention, even though the improvement falls within the claims of that prior patent.[5] This suggests that a prior *genus* which does not explicitly disclose a *species* does not anticipate a later claim to that *species*. ...Corning Glass Works v. Sumitomo Electric U.S.A., 868 F.2d 1251, 1262, 9 USPQ2d 1962, 1970 (Fed. Cir. 1989)

Donald S. Chisum, Patents, *A Treatise on the Law of Patentability, Validity and Infringement*, Vol. 1, 3-21, 1992.
The possibility that claims 1-3, 7, 9-15 and/or 23-29 could encompass a compound of the '577 patent does not support a rejection under obviousness-type double patenting since a *species* patent can co-exist with a *genus* patent.

The Examiner's statement that the "claimed analogues of Patent 5,723,577 are similar to the PTH analogues of the instant Application and would therefore possess the same inherent characteristics such as PTH2 binding affinity and efficacy (Kd

and EC50 respectively" contradicts the statement made in the Office Action mailed August 19, 2003 wherein the Examiner stated that "each PTH2 receptor analogue is patentably distinct from every other because each has ***a different putative function***, a different structure...[and as such each analogue] is distinct [having] acquired a separate status in the art because of their recognized divergent subject matter."

The Examiner's statement that "there is no apparent reason why applicant was prevented from presenting claims corresponding to the those of the instant application during the prosecution of the application which matured into a patent," citing In re Schneller, 397 F.2d 350, 158 USPQ 210 (CCPA 1968) and MPEP §804 as support, is also clearly erroneous. A thorough reading of the application would have revealed to the Examiner that the PTH2 receptor was first identified and partially characterized by Behar, V. *et al.*, in Endocrinology, (1996) 137:2748-57; by Gardella, T.J. *et al.*, in The Journal of Biological Chemistry (1996), 271:19888-93; by Behar, V. *et al.*, in Endocrinology, (1996), 137:4217-24; and by Usdin, T.B., *et al.*, in Endocrinology, (1997), 138:831-4, which published, respectively, in July, 1996; August, 1996; October, 1996; and February, 1997. The application for the '577 patent was filed March 29, 1996, before the first disclosure of the PTH2 receptor. Applicants assert that the inventor of the '577 patent could not have presented the claims of the instant application during its prosecution, as alleged by the Examiner.

Accordingly, the obviousness-type double patenting rejection of claims 9, 10, 13, 14, 23, 24, 27 and 28 over U.S. Patent No. 5,723,577 should be withdrawn.

9. The Examiner has rejected claims 1-3, 7, 9-15 and 23-29 under the judicially created doctrine of obviousness-type double patenting over claims 1-16 of U.S. Patent No. 5,717,062

(hereinafter referred to as "the '062 patent"). Applicants respectfully traverse this rejection. Applicants incorporate, as if stated in their entirety herein, their immediately preceding argument with respect to the obviousness-type double patenting rejection of the same claims over U.S. Patent 5,723,577 as set forth in above paragraph 8. More particularly, the claims of the '062 patent do not suggest that the compounds claimed therein possess selective PTH2 binding activity. Applicants point out that the '062 patent ***requires*** that the side chain residues of "A_{13} and A_{17}, A_{26} and A_{30} or A_{13} and A_{17} and A_{26} and A_{30}" be linked by a disulfide bond or an amide bond, *see* column 25, lines 14-16, a limitation, not found in any of the claims of the instant application, and as such, the '062 patent can not anticipate any of the rejected claims. With respect to the Examiner's statement that "there is no apparent reason why applicant was prevented from presenting claims corresponding to the those of the instant application during the prosecution of the application which matured into a patent," in particular, Applicants assert that the inventors of the '062 patent could not possibly have presented the claims of the instant application during its prosecution of the '062 patent, as alleged by the Examiner, since the patent application that the '062 patent was based upon, was filed on June 7, 1995, a year before the existence of the PTH2 receptor was known by the general public.

The Examiner's statement that since the "claimed analogues of the instant Application are similar in structure to the claimed peptides and peptide analogues of Patent 5,717,062…[one would expect that the] analogues of Patent 5,717,062…[and] the PTH analogues of the instant Application … would therefore possess the same inherent characteristics, such as PTH2 binding affinity and efficacy" contradicts the statement made in the Office Action mailed August 19, 2003 wherein the Examiner stated that "each PTH2 receptor analogue is patentably distinct from

every other because ***each has a different putative function***, a different structure...[and as such each analogue] is distinct [having] acquired a separate status in the art because of their recognized divergent subject matter."

Accordingly, the rejection of claims 99, 10, 13, 14, 23, 24, 27 and 28 under the judicially created doctrine of obviousness-type double patenting over the '062 patent, must be withdrawn.

10. The Examiner has rejected claims 1-3, 7, 9-15 and 23-29 under the judicially created doctrine of obviousness-type double patenting over claims 1-14 of U.S. Patent No. 5,995,574 (hereinafter referred to as "the '574 patent"). Applicants respectfully traverse this rejection. The '574 patent, issued to Matsumoto *et al.* and owned by the General Electric Company, claims an "integral forged shroud flange for a boiling water reactor." The Examiner's statement that "the '574 patent anticipates the claims [sic] of the instant application," is clearly erroneous.

Accordingly, the rejection of claims 9, 10, 13, 14, 23, 24, 27 and 28 under the judicially created doctrine of obviousness-type double patenting over the '574 patent, must be withdrawn.

11. Claims 1-3, 7, 9-15 and 23-29 were rejected under 35 U.S.C. §102(b) as being unpatentable over Gardella, et al, [sic] (1996, J. Biol. Chem., 271(33):19888-19893) (hereinafter referred to as "Gardella"). Applicants respectfully traverse this rejection. The Examiner's opinion that "Gardella, et al [sic] disclose human PTH analogues that are selective for the PTH2 receptor (see Table I and Figure 2B)" and that "PTH analogues in which each residue is substituted or deleted (see in particular Figures 4-7) [were made and tested by Gardella]" is inaccurate. A careful reading of Gardella indicates that it is concerned with determining the reason native parathyroid hormone-related peptide's (PTHrP) is unable to activate the PTH2 receptor like native human parathyroid hormone (hPTH) can. Gardella discovered

that substituting the Phe found in the 23rd position of native hPTHrP with Trp which is found in the corresponding 23rd position in native PTH, resulted in a hPTHrP analogue that stimulated the PTH2 receptor. Gardella also discusses the discovery that, in addition to a Trp substitution in the 23rd position, substituting His found in the 5th position of native hPTHrP with Ile found in the 5th position of native PTH resulted in an even more potent analogue, i.e., [Ile^5, Trp^{23}]hPTHrP(1-36), than the analogue with just the single Trp^{23} substitution, i.e., [Trp^{23}]hPTHrP(1-36).

A careful reading of the claims set of the instant application indicates that neither of the two PTH2 receptor hPTHrP(1-36) analogues discussed by Gardella, are claimed. Claim 13, which is directed to parathyroid hormone-related peptide analogues which bind to the PTH2 receptor, has appended thereto a *proviso* clause specifically disclaiming [Ile^5, Trp^{23}]hPTHrP(1-36) and [Trp^{23}]hPTHrP(1-36). With respect to claims 9 and 10, which are directed to PTH analogues, Gardella does not teach or suggest any substitutions of any of the amino acid residues found in native parathyroid hormone (PTH). Clearly, the rejection of claims 9, 10, 13,1 4, 23, 24, 27 and 28, as anticipated by Gardella, is in error.

The Examiner's statement that the "[b]ecause of the similarity between the peptides disclosed in Gardella, et al [sic] and the instant Application [sic], the peptides disclosed in the reference will have the same inherent binding properties at the PTH2 receptor as those of the instant Application" contradicts the statement made in the Office Action mailed August 19, 2003 wherein the Examiner states that "each PTH2 receptor analogue is patentably distinct from every other because each has a different putative function, a different structure…[and as such each analogue] is distinct [having] acquired a separate status in the art because of their recognized divergent subject matter."

Accordingly, the rejection of claims 9, 10, 13, 14, 23, 24, 27 and 28 under 35 U.S.C. §102(b) as being unpatentable over Gardella, et al, [sic] (1996, J. Biol. Chem., 271(33):19888-19893), is erroneous and must be withdrawn.

12. The Examiner has rejected claims 1-3, 7 and 9 under 35 U.S.C. §102(b) over Neugebauer and Willick (1993), Peptides 1992, C.H. Schneider and A.N. Eberle (eds), ESCOM Science Publishers (hereinafter referred to as "the Neugebauer article"). Applicants respectfully traverse this rejection. Applicants incorporate herein Applicants' arguments as detailed in paragraph 8 above as if stated in their entirety herein. Applicants note that the Neugebauer article does not teach compounds that selectively bind to PTH2 receptor. Further, selective PTH2 binding is not an inherent property of all or even most PTH1 binding compounds.

The Examiner's statement that the "[b]ecause of the similarity between the peptides disclosed in Neugebauer and Willick and the instant Application [sic], the peptides disclosed in the reference will have the same inherent binding properties at the PTH2 receptor as those of the instant Application" contradicts the statement made in the Office Action mailed August 19, 2003 wherein the Examiner states that "each PTH2 receptor analogue is patentably distinct from every other because each has a different putative function, a different structure…[and as such each analogue] is distinct [having] acquired a separate status in the art because of their recognized divergent subject matter."

Accordingly, the rejection of claim 9 under 35 U.S.C. §102(b) over the Neugebauer article should be withdrawn.

13. Claims 1-3, 7 and 9 stand rejected under 35 U.S.C. §102(b) over U.S. Patent 5,556,940 issued to Willick *et al.* (hereinafter referred to as "the '940 patent"). Applicants respectfully traverse this rejection. Applicants incorporate herein Applicants' arguments as detailed in paragraph 8 above as

if stated in their entirety herein. Applicants point out that the '940 patent does not teach or disclose compounds that selectively bind to the PTH2 receptor. Further, as Applicants have argued time and again, it cannot be assumed that structural similarity alone is predictive of whether a compound will selectively bind to the PTH2 receptor.

The Examiner's statement that the "[b]ecause of the similarity between the peptides disclosed in Patent 5,556,940 and the instant Application, the peptides disclosed in the reference will have the same inherent binding properties at the PTH2 receptor as those of the instant Application" contradicts the statement made in the Office Action mailed August 19, 2003 wherein the Examiner states that "each PTH2 receptor analogue is patentably distinct from every other because each has a different putative function, a different structure...[and as such each analogue] is distinct [having] acquired a separate status in the art because of their recognized divergent subject matter."

Based upon the foregoing, the rejection of claim 9 under 35 U.S.C. §102(b) over the '940 patent, should be withdrawn.

14. The Examiner has rejected claims 1-3 and 7 under 35 U.S.C. §102(b) as being unpatentable over the Chorev et al, (1990, Biochemistry, 29: 1580-1586) [sic] (hereinfter referred to as "Chorev *et al.*"). Based on the cancellation of claims 1-3 and 7, this rejection is moot. The rejection of claims 1-3 and 7 under 35 U.S.C. §102(b) over Chorev *et al.* should be withdrawn.

15. Claims 1-3 stand rejected under 35 U.S.C. §102(b) over U.S. Patent 5,001,223 issued to Rosenblatt *et al.* in 1991 (hereinafter referred to as "the '223 patent"). Based on the cancellation of claims 1-3, this rejection is moot. The rejection of claims 1-3 under 35 U.S.C. §102(b) over Rosenblatt *et al.* should be withdrawn.

16. Claims 1-3, 7, 9-15 and 23-29 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 5,717,062 issued to Chorev *et al.* in 1996 (hereinafter referred to as "the '062 patent"). Applicants respectfully traverse this rejection. As Applicants have indicated before, the claims of the instant application define compounds not only by structure, that is "PTH analogue or a truncated PTH analogue," but also by functional language, namely the PTH analogue or a truncated PTH analogue "selectively bind to the PTH2 receptor." In addition to the structural elements, the prior art patent or application must teach or suggest the functional limitation of selectively binding to the PTH2 receptor in its claims. As stated previously, non-selective PTH2 binding compounds are known in the art, *see* page 3, lines 1-3, however, selective PTH2 binding compounds are, to the best of Applicants' knowledge, not known in the prior art. More particularly, the claims of the '062 patent do not suggest that the compounds claimed therein possess *selective* PTH2 binding activity. Applicants point out that the '062 patent requires that the side chain residues of "A_{13} and A_{17}, A_{26} and A_{30} or A_{13} and A_{17} and A_{26} and A_{30}" be linked by a disulfide bond or an amide bond, *see* column 25, lines 14-16. This limitation is not in Applicants' claims and, therefore, the '062 patent does not anticipate any of the rejected claims. Applicants have argued that mere similarity of structure by itself does not support an assumption that the compounds are obviously the same as the compounds of the '062 patent.

Accordingly, the rejection of claims 9, 10, 13, 14, 23, 24, 27 and 28 under 35 U.S.C. §102(e) over U.S. Patent No. 5,717,062, should be withdrawn.

17. Claims 1-3, 7, 9, 15 and 23-29 stand rejected under 35 U.S.C. §102(e) over U.S. Patent 5,955,574 issued to Dong (hereinafter referred to as "the '574 patent"). Applicants

respectfully traverse this rejection. Applicants have argued that the similarity of structure, by itself, is not a sufficient basis for assuming that a compound of the '574 patent would selectively bind to the PTH2 receptor. Further, not all elements of the rejected claims of the instant application are disclosed or taught by the '574 patent.

Accordingly, the rejection of claims 9, 10, 13, 14, 23, 24, 27 and 28 under 35 U.S.C. §102(e) over U.S. Patent 5,955,574 should be withdrawn.

18. The Examiner has rejected claims 7, 9, 10 and 12-14 under 35 U.S.C. §112, second paragraph, for the reasons stated at page 12 of the instant Office Action. Applicants have made the changes to the claims in accordance with the Examiner's recommendations. In particular, the *Markush* group defining R^1 and R^2 has been amended into the accepted format and the *proviso* clauses appended to claims 9, 10 and 13 have been amended to provide a proper antecedent basis.

Accordingly, the rejection of claims 9, 10, 13 and 14 under 35 U.S.C. §112, second paragraph, as being indefinite, should be withdrawn.

Applicants respectfully submit that the claims are in a condition for allowance and notification to that effect is respectfully requested. Examiner Wegert is invited to telephone Applicant(s) attorney at (508) 478-0144 to facilitate prosecution of this application.

Please apply any charges or credits to Deposit Account No. 50-0590 referencing attorney docket number 073/US/PCT/US.

Respectfully submitted,

Date: 10/11/2005

Alan F. Feeney
Attorney for Applicant
Reg. No. 43,609

IPSEN (BIOMEASURE)
27 Maple Street
Milford, MA 01757-3650
(508) 478-0144 Telephone
(508) 473-3531 Facsimile